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## Message from the Executive Director

During 2006, the Environmental Protection Agency (EPA) benefited significantly from institutional strengthening and capacity building support provided by several international institutions. These included the Inter-American Development Bank (IDB) through the Environmental Management Programme, Phase II, the United Nations Development Programme (UNDP), Fauna and Flora International (FFI), the World Wildlife Fund (WWF) and the Caribbean Regional Environment Programme (CREP).

Through the support of the various international institutions referred to above, the Agency was able to acquire several essential equipment, supplies, services and training for staff in critical areas. Several pieces of laboratory equipment were procured and handed over to the Institute of Applied Science and Technology (IAST) for installation and management through a Memorandum of Understanding (MoU), to enhance the Institute's capacity to perform specific laboratory testing to meet the requirements of the Agency.

In the area of Natural Resources Management, considerable progress was made in 2006 in protected areas. The KfW Small Grants Component of the GPAS Project, funded by the Federal Republic of Germany in the sum of Euros 2.56 million (US\$3.1 million) commenced in March, 2006. The goal of this project is conservation of ecosystems and enhancement of the livelihoods of the various Amerindian communities in or in proximity to protected/proposed protected areas.

In 2006, there was an increase in Biodiversity Research and the availability of biodiversity data on Guyana. The number of Biodiversity Research Applications increased from fourteen (14) in 2005 to thirty-five (35) in 2006. Twenty-one (21) Biodiversity Research Permits were issued, mostly for filming and faunal studies and to a lesser extent, floral studies.

For the area of Environmental Management, two hundred and twenty-nine (229) applications were received for Environmental Authorisation. One hundred (100) applications were for new projects, twelve (12) for renewal of permits for existing projects, two (2) for variance of Environmental Authorisations and one hundred and fifteen (115) for Noise Permits.

The Agency continued to receive a significant number of complaints. Of the total of two hundred and twenty-four (224) complaints received, one hundred and eighty-three (183) were new complaints and forty-one (41) were recurring. Most of the complaints were for dust, noise, odour, and smoke nuisances

from several operations, many of which were located in residential areas. Such complaints originated from improper land-use planning/zoning and inappropriate location of business entities.

In the area of Research and Development, the Agency collaborated with the Guyana National Bureau of Standards (GNBS), in the development of procedures and manuals for implementation of the ISO 17020 Standards for Inspection Bodies. In addition, Interim Standards were developed for noise and air quality and there was a review of the industrial effluent discharge standard. There were a number of important consultancies during the year, financed under the Environmental Management Programme, Phase II. These included:

- *Consultancy to Build Capacity for Regulation of Existing Industry for Pollution Abatement and Control*
- *Consultancy to develop a National Environmental Monitoring Plan*
- *Consultancy to Build Capacity for design and implementation of a Public Disclosure Program and State of the Environment Reporting*
- *Consultancy to Conduct Pre-Feasibility Studies for the Development of Projects in Environmental and Natural Resources Management*

The Education, Information and Training Division of the Agency continued to perform a critical role in the areas of development of education materials, outreach, capacity building and information and communication. In this regard, booklets, information packages, calendars, reports and newsletters were prepared. There were also presentations to several interest groups, media programmes and newspaper articles.

The Audited Financial Statement for 2006 was received on November 4, 2008 and again included a “disclaimer of opinions”, regarding the financial statements of the Wildlife Division not being included with the EPA’s financial statements.

The Agency made remarkable progress in 2006 in the implementation of its work programme and we are indeed greatly appreciative of the support provided by the various parties, especially the international institutions

**Doorga Persaud**  
**Executive Director**

## 1.1 THE MISSION OF THE EPA

The mission of the Environmental Protection Agency (EPA) is **to ensure management, conservation, protection and improvement of the environment, the prevention or control of pollution, the assessment of the impact of economic development on the environment and the sustainable use of natural resources.**

## 1.2 THE ENVIRONMENTAL PROTECTION ACT

On June 5, 1996, the Environmental Protection Act (EP Act) was passed by Parliament. This legislation comprehensively addresses the areas of environmental management and sustainable use of natural resources and established the Environmental Protection Agency (EPA). The EP Act mandates the EPA to oversee effective management, conservation, protection and improvement of the environment, the prevention and control of pollution, the assessment of the impact of economic development on the environment and the sustainable use of natural resources.

Although an Environmental Unit was created in the Office of the President after the passing of the EP Act, the EPA itself did not become fully staffed and operational until 1998.

The objectives of the EPA are to protect Guyana's environment and in so doing, contribute to global environmental protection. The EPA approaches environmental protection through education, partnership, collaboration, regulation and enforcement.

## 1.3 THE FUNCTIONS OF THE EPA

The functions of the EPA are clearly stated in the EP Act, Part II 4 (1). They can be classified into three broad categories, namely, *regulatory, coordinating and the promotion of public participation in environmental protection.*

The Agency's regulatory function gives it the responsibility to monitor and enforce the EP Act and associated regulations. This function of the EPA ensures that development integrates measures for environment protection.

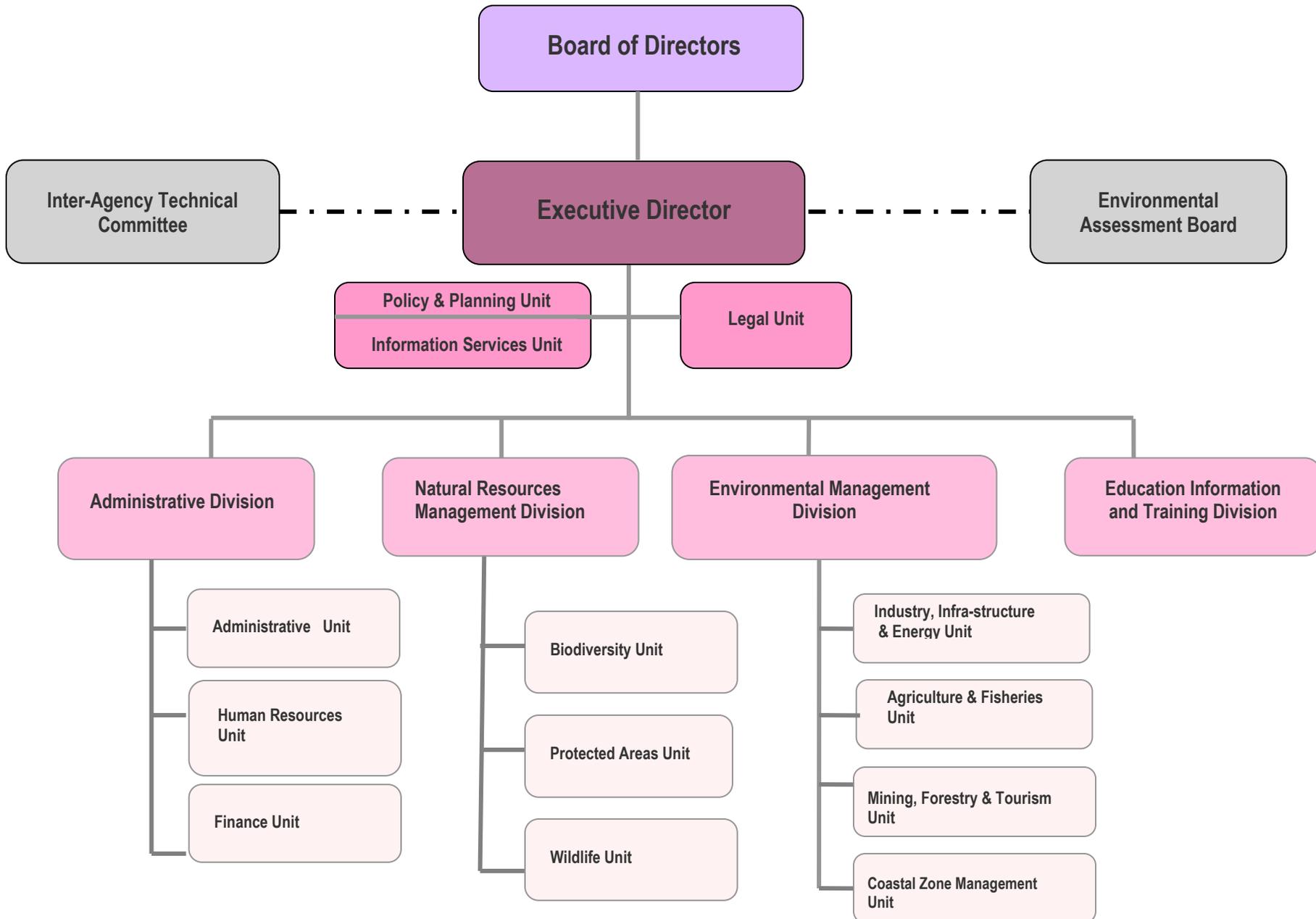
The EPA has a major coordinating function with regard to the sustainable use and conservation of Guyana's natural resources. The work of the EPA is complex, spanning a range of interconnected issues, making coordination with private and public sector and non-governmental organizations

essential for the accomplishment of its mandate.

The EPA has a responsibility to promote the participation of the public in the process of integrating environmental concerns in the planning for sustainable development. This is achieved by providing information to the public on environmental issues and problems and EPA's procedures and processes.

## 1.4 ORGANIZATIONAL STRUCTURE OF THE EPA

Figure 1 below shows the organizational structure of EPA during 2006. The Chairman of the EPA Board and the Executive Director of the EPA reports to the President of Guyana. The President of Guyana is the Minister with responsibility for the Environment.



## **2.0 PROGRAMME AREAS**

The Environmental Protection Agency implements its mandate through four Programmes. These are, the Natural Resources Management, Environmental Management, Education, Awareness and Capacity Building and Cross-Sectoral Programmes.

### **2.1 NATURAL RESOURCES MANAGEMENT**

Having ratified the Convention on Biological Diversity, Guyana committed to developing National Strategies, Plans and Programmes for the conservation and sustainable use of biodiversity and to take legislative, administrative and policy measures towards achieving these goals. The mandate of the Environmental Protection Agency includes the coordination and maintenance of a programme, for the conservation of biodiversity and its sustainable use in Guyana. The Natural Resources Management Division (NRMD) of the Agency has a dedicated focus on implementing a programme towards meeting this mandate.

To achieve its objectives, the NRMD collaborates with various sectoral agencies and institutions in Guyana. These include, the Guyana Forestry Commission, Ministry of Agriculture, Wildlife Division, Guyana Geology and Mines Commission, University of Guyana, National Parks Commission and others. The Division also collaborates with several, local and international Non-Governmental Organization (NGOs), such as Conservation International – Guyana (CIG), the Guyana Marine Turtle Conservation Society (GMTCS), World Wildlife Fund for Nature (WWF) and Fauna and Flora International (FFI), among others, and most importantly with the local communities.

One of the most important strategy documents guiding the NRMD is the National Biodiversity Action Plan (NBAP), which outlines the major programme areas for biodiversity management in Guyana. These include Conservation of Biodiversity, Sustainable use of Biodiversity, Conservation and Sustainable use of Wildlife.

### **2.2 ENVIRONMENTAL MANAGEMENT**

The Environmental Management Division (EMD) implements programmes towards enabling the Agency to achieve its mandate for pollution prevention control and prevention. As such, the Division has the major role of ensuring that developmental projects conform to the goal of sustainable development. To ensure that this goal is met, the Division oversees the process of

authorization and ensures that polluters remediate the environment through the process of pollution control and enforcement. Some of the strategies adopted by the EMD to assure that the EP Act, 1996 is enforced include:

- **Authorising New Developments:** Any new development that may have a significant effect on the environment is required to conform to the EPA's authorization process which involves application, screening, publication of the EPA's decision, EIA (or not), decision to grant environmental authorization or not.
- **Monitoring of Environmental Authorisations:** As part of the EPA's responsibility to ensure that developments mitigate against pollution and remediate when necessary, monitoring of the ambient environment as well as specific environmental authorizations is necessary.
- **Authorising Existing Developments:** EMD through the Environmental Protection (EP) Regulations (2000) has regularised existing industrial activities through a registration process. EMD, based on the registration process will develop sectoral compliance schedules that will upgrade these sectors to an acceptable environmental standard.
- **Developing Competencies in Environmental Management:** The EPA recognizes that the role of the Agency would be much more effective if the stakeholders are aware of their responsibilities.
- **Developing Regulations:** In keeping with the EP Act, EMD has begun and will continue the pursuit of regulations development.
- **Reviewing and Developing Standards, Environmental and Operational Guidelines, Codes of Practice etc.**
- **Coordinating Environmental Management through Stakeholder Collaboration.**
  - EPA-UG ongoing environmental management research programme
  - Inter-agency collaboration in the area of environmental authorizations and complaints responses has been strengthened
- **Managing Environmental Complaints:** EMD continues to resolve legitimate environmental complaints.
- **Preparing for environmental emergencies**

## **2.3 INFORMATION, AWARENESS, EDUCATION AND CAPACITY BUILDING**

The promotion of public awareness and participation in protection, conservation and sustainable use of the environment is a key function of the EPA as outlined in the EP Act (1996). This function of the EPA is the responsibility of its Education, Information and Training (EIT) Division.

A National Environmental Education Strategy formulated in 1998 serves as a guide in the promotion of public awareness and public participation in the protection, conservation and sustainable use of the environment.

Through its EIT Programme, the EPA interfaces with a wide segment of the population and provides information in a range of formats to raise environmental awareness and knowledge of the populace.

The delivery of the EIT Programme entails working in close collaboration with the Environmental Management and the Natural Resources Management Programmes of the EPA as well as a number of Sectoral Agencies and Non-Governmental Organisations.

The purpose of the EIT Programme is twofold; it promotes public awareness of and participation in environmental decision-making as well as informs the public of systems and procedures established by the EPA for environmental management and conservation.

## **2.4 CROSS-SECTORAL PROGRAMMES**

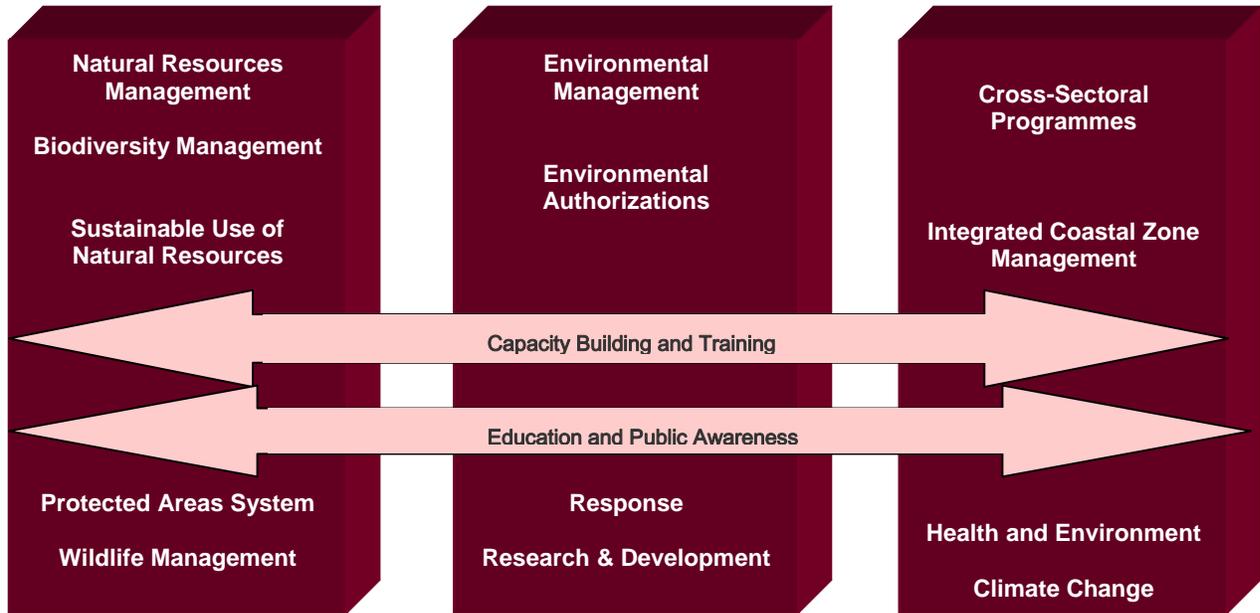
Currently, the EPA plays a major role in two cross-sectoral programmes in the areas of Integrated Coastal Zone Management and Climate Change.

The ICZM focuses on three major activities: assessment of the potential damage and loss to the Coastal Zone (vulnerability assessment) in face of sea-level rise, assessment of steps that are in place for the Coastal Zone to adjust/adapt to sea level rise and Management of infrastructure and natural resources.

The Climate Change program focuses on the establishment of measures for adaptation to consequences of climate-related environmental problems.

As part of its role regarding environmental coordination, the EPA's primary approach to environmental protection and management is to work through existing organizations dealing with the environment and create partnerships around important environmental activities.

Figure 2: EPA Programmes, components and links



The effective implementation of the Agency's work programme and projects was facilitated with high quality administrative support. This included, efficient financial planning, management and reporting systems, recruitment and development of a team of skilled and highly motivated staff and effective and transparent procurement and asset management procedures.

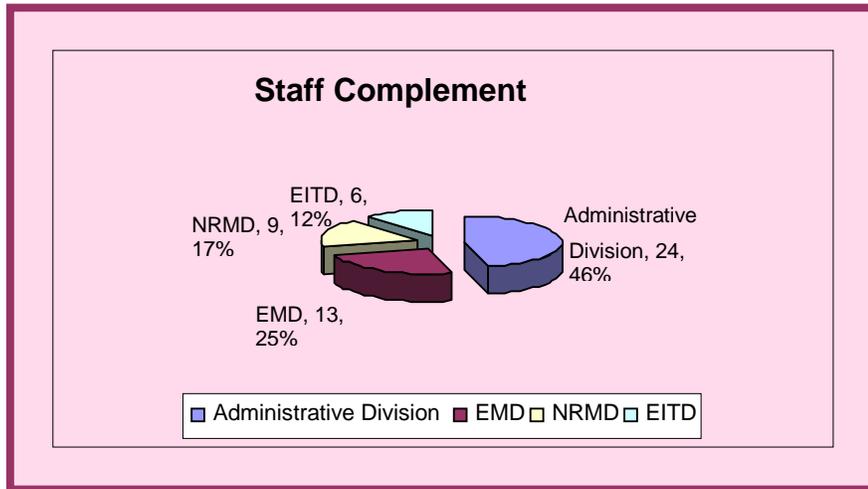
### 3.1 HUMAN RESOURCES

Human resources management is a critical component of administration and falls under the supervision of the Agency's Administrative Director. During 2006, a total of fourteen (14) suitable candidates were recruited to fill vacancies in the Agency. Of these, one was appointed in the Education, Information and Training Division, four in the Administrative Division, two in the Natural Resources Management Division, and seven in the Environmental Management Division. The specific positions that were filled are as follows:

- Information Technology Specialist (1)
- Administrative Assistant (1)
- Accounts Clerk (2)
- Environmental Officer (9)
- Field Technician (1)

The staff complement at the end of 2006 was fifty-two (52) and was distributed across the four Divisions as shown in Figure 3.

Figure 3 – EPA’s Staff Complement in 2006

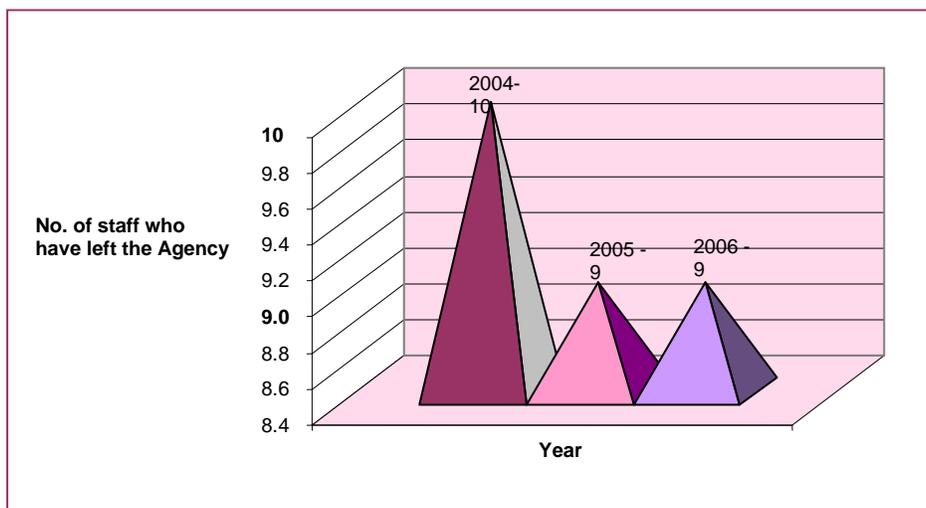


The male - female ratio during 2006 was 2 males: 3 females. See Appendix 1 for staffing details for 2006.

During the year, seven (7) persons resigned from the Agency while the service of one (1) Officer was terminated and another did not renew her employment contract.

The Agency continues to experience high staff turnover, with many persons going abroad for further studies, and others taking up appointments elsewhere in the country.

Figure 4: Staff turnover at the Agency for the period 2004-2006



The Agency was able to benefit from a number of training opportunities during 2006 as shown in Table 1 below.

**Table 1: Meetings, Workshops, Training and Seminars attended in 2006**

Participation Forum	Country	Date
<b>Meetings</b>		
1. Global Environment Facility (GEF) Consultation and Council Meeting	United States of America	June 5-9
2. GEF Dialogue Initiative	Barbados	July 10-11
3. GEF Special Council Meeting & 3 <sup>rd</sup> GEF Assembly	South Africa	Aug 28-30
4. 3 <sup>rd</sup> Meeting of the Steering Committee on Regional Strategy for Environmental Sound Management of Lead Acid Batteries	Trinidad Tobago	Sept 27-28
5. Committee Meeting on Avian Influenza and Museum Development	Guyana	
6. Global Biodiversity Information Facility (GBIF)	Peru	Oct 1-4
7. 2 <sup>nd</sup> Intergovernmental Review Meeting of the Global Programme of Action for the Protection of the Environment from Land-based Activities	China	Oct 16-20
8. 9 <sup>th</sup> Meeting of the Contracting Parties to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region	Jamaica	Nov 29-Dec 2
9. GEF Consultation and Council Meeting	USA	Dec 4-8
<b>Workshops</b>		
1. Conflict Resolution Skills	Guyana	Jan 23-Feb 3
2. Building Capacity in Environmental Management Systems	Guyana	Jul 10-13
3. 2 <sup>nd</sup> International Workshop of the Subnetwork Amazon Protected Areas Information Network	Columbia	July 10-16
4. Guianas VIII Regional Marine Turtle Symposium	Surinam	Oct 25-27
5. Regional Strategy Workshop for Latin America & the Caribbean on Biological Diversity of Dry and Sub-Humid Lands and Agricultural Biodiversity	Antigua & Bermuda	Nov 20-23
6. National Consultation Workshop on Draft NBF	Guyana	Nov 27
7. Research Application Module Training	Guyana	Dec 7
<b>Training</b>		
1. Geographic Information System	Guyana (Funded under IDB)	Feb 16-Mar 8 & 28
2. Lab Quality Assurance & Quality Control	Guyana (Funded under IDB)	Mar 20-24
3. Basic Survival Swimming	Guyana (Funded under IDB)	Month of July
4. Integrated Coastal Zone Management	Thailand	Aug 21-Sept 22
<b>Seminars</b>		
1. I DB Disbursement Procedures and Reporting Requirements	Guyana	June
2. Harmonized Approach to Cash Transfers	Guyana	July
3. Green Architecture and Energy Saving	China	Nov 10-25
4. Use of Light Building Material & Environmental Protection Seminar	China	Dec 1-15



**EPA Staff Participating in a Training Activity in Communications**

### **Occupational Safety & Health**

The Occupational Safety & Health (OSH) Committee of the EPA was inaugurated in June 2006. It comprises representatives from all four (4) Divisions of the Agency, an employer's representative and an ex-officio member, following the guidance form the OSH Act. Terms of Reference for each representative were drafted and agreed upon by Management and the Committee. This was followed by a workplan to guide the operation of the Committee. The Committee monitors its progress on a monthly basis relative to this workplan which includes monthly meetings and building inspections.

### **3.2 PROCUREMENT**

Day-to-day management of the Agency's procurement and assets was effectively carried out during the year. Materials, equipment and consultancy services were procured under the following Projects being managed by the Agency:

- The Environmental Management Program - (EMP) Phase II funded by the Inter-American Development Bank;

- The Caribbean Regional Environmental Programme (CREP) Amenity Area Demonstration Project funded by the European Union; and
- Government of Guyana budget.

The following equipment and supplies and services were procured by the Agency during 2006:

- Field and Laboratory Equipment were purchased under the (EMP) Phase II with funding from the Inter-American Development Bank.
- A refrigerator, microwave and water dispenser were purchased with funding from the Government of Guyana.
- Office Stationery and furniture were purchased with funding from the CREP Project.
- Air Conditioner Units and a photocopier were purchased with funding from the Inter-American Development Bank.
- Additional office and computer equipment and accessories including licensed software packages were procured with funding from the Inter-American Development Bank.
- The driveway of the IAST compound was rehabilitated under the Agency's Capital Program for 2006 and with funding from the Government of Guyana.

### **3.3 POLICY AND PLANNING**

The Agency engaged this year in the development of proposals for the application of Environmental Economic Instruments as follows:

*Permit Fees:* The screening criteria for the selection of permit fees for environmental authorizations were revised.

*Policy Briefs:* The following policy briefs were prepared during the year:

- Incentive mechanisms for the diffusion of renewable and energy efficient technologies – The use of Fee rebates.
- Analysis of Existing and Potential Environmental Economic Instruments in Guyana's Tourism Sector.
- Incentive mechanisms for the Environmental Authorization process.
- Payments for Environmental Services.

In Environmental Valuation the following were achieved:

- A paper entitled '*The economic valuation of land degradation in Guyana, a theoretical and practical analysis*' was prepared and presented at the World Environment Day Conference 2006 hosted by UG.
- A valuation of the costs of ineffective Solid Waste Management was conducted.

Monitoring schemes were established for a number of projects at the Agency including the IDB Environmental Management Programme Phase II, the KfW funded Small Grants component of the Guyana Protected Areas System Project, the National Capacity Self Assessment Project and the Coastal Zone Management Systems Project.

### **Capacity Building**

Training was conducted as follows:

- Nine (9) in-house seminars were presented during the year.
- The training material for a basic Environmental Economics course was collated into a Training Manual.
- The Environmental Economist at The Agency participated in training on Monitoring and Evaluation at the Office of the President.
- A competition on recycling/re-using Plastic Bottles was organized in collaboration with the UNDP, UNICEF, PAHO, Banks DIH and Demerara Distillers Limited. Posters were designed and distributed, media appearances were made, entries were collated and judged and a prize ceremony was held.
- The EPA's Strategic Plan 2006-2010 was finalized.
- Assistance was provided to the Office of the President in updating the Millennium Development Goal Report 2006.
- Assistance was provided in the completion of the PRSP Report 2006.

The Agency made significant efforts to strengthen its capacity to coordinate and maintain a programme for the conservation of biological diversity and its sustainable use. There were several notable achievements for the year 2006, which included the implementation of key projects aimed at promoting the mandate of the EPA and Guyana's obligations to the international Multi-Lateral Environmental Agreements (MEAs), specifically, the Convention on Biological Diversity (CBD).

The EPA as the Focal Point for the Convention on Biological Diversity is responsible for the implementation of programmes and activities to achieve the objectives of the Convention. Under the Environmental Protection Act (1996), the EPA is mandated to coordinate and maintain a programme for the conservation and sustainable use of biological diversity in Guyana.

### 4.1 CONSERVATION OF BIODIVERSITY

#### Protected Areas

##### *KfW Small Grants Project*

The Financing Agreement for EURO 2.56M (US\$3.1M) for the KfW Component of the Guyana Protected Areas System (GPAS) Project was signed in July, 2004. However, implementation of the two-year project began in March 2006. The goal of this component is the conservation of ecosystems and enhancing the livelihoods of the various Amerindian communities living in or in close proximity to protected / proposed protected areas.

In 2006, a team comprising representatives from the EPA and GFA, a consultancy group contracted by KfW to assist the EPA with implementing the project, met with over thirty Amerindian communities in the intervention areas. Some of these areas included Chenapau, Kaieteur National Park, and communities in the Waini River, Shell Beach, Shea, Moco Moco, Sand Creek, Yupukari, Shulinab, and several others.

During the community meetings, the team explained the goal of the project, the requirements, and the procedure for accessing the grant funds. Project ideas were discussed with the community members and the team also rendered assistance with the preparation of project proposals.

Upon submission of the completed proposals to the EPA, an Appraisal Committee which was set up by the EPA and included relevant stakeholders, such as the Ministry of Amerindian Affairs and the Institute of Private Enterprise and Development (IPED), evaluated the proposals based on criteria set by the key stakeholders and made recommendations to the EPA. The EPA and KfW approved the projects, following which a Grant Agreement was signed with the community or Lead Agency.

By the end of 2006, five projects were approved for funding. These included:

1. Ranger Kits – submitted by the Board of the Kaieteur National Park
2. Fencing of Farmlands – submitted by the community of Maruranau, Region Nine
3. North West Organics – submitted by the Board of Guyana Marine Turtle Conservation Society (GMTCS)
4. Craft Development in Chenapou Village – submitted by the community of Chenapau
5. The Kumu Eco-lodge – submitted by the community of St. Ignatius, Region Nine

With the successful implementation of the projects, it is envisaged that the communities would benefit socially and economically in the long-term. The projects would also contribute to conservation of the resources of the protected area / proposed protected areas.



KfW Representative, Mr. Bechtolsheim hands Ranger Kits to the Kaieteur National Park Board

The implementing of the KfW project presented many challenges and constraints. The project was intended to be a component of the World Bank Guyana Protected Areas System (GPAS) project, which would have been implemented in Year 3 of that five-year project, but funding for the other Components of the Project did not materialise. As such, the KfW Component is being implemented without the support that would have been provided under the GPAS project. In addition, the remoteness of the communities prevented timely feedback and communication between the communities and the EPA/GFA.

#### *KfW Training Component*

Apart from the Small Grants Component, KfW is also funding training in Participatory Natural Resource Management valued at EURO 370,000. The training is being delivered by the Iwokrama International Centre. In 2006, approximately fifteen persons from the communities of the intervention areas received ranger training.

#### *Caribbean Regional Environmental Programme (CREP)*

The Caribbean Regional Environmental Programme (CREP) was designed to strengthen regional cooperation and build capacity for conservation management and sustainable development in Amenity Areas in the Caribbean. The objective of the project was to demonstrate that environmentally sound projects can create opportunities for sustainable development whilst maintaining the integrity of the natural resource base.

The EPA had been chosen as the National Focal Point Organization (FPO) for the Guyana Amenity Area Demonstration Project (AADP) which is located between Numbers 43-74 Villages on the Corentyne Coast, Berbice. Extensive mangrove cover provides very important ecosystem functions and is linked to a variety of economic activities in the area. The majority of the resource users were watermelon farmers. These farms were located on the beach front and farmers had to clear the vegetation cover for farmlands.

This project was publicly launched on October 14, 2005. For the review period the following took place:

- The first draft Beach Management Plan was submitted, finalized and approved.
- Resource mapping of the project area using the Global Positioning System (GPS).

- A “Perception Study” was approved.
- The contract for the development of the Constitution of the NGO was signed.
- The Project Management Unit (PMU) closed its operations on June 30, 2006.



Picture showing a section of the Amenity Area

*Fauna and Flora International (FFI)*

The partnership between the EPA and Fauna & Flora International (FFI) to strengthen the capacity for the development of Guyana’s National Protected Areas System at central government and site (Shell Beach) level continued. Some achievements were:

- A Protected Areas documentary was launched on April 05, 2006.
- Infomercials for Kaieteur National Park and Shell Beach were completed.
- Copies of the Protected Areas documentary “Our National Treasures” were distributed to governmental agencies/ministries, educational institutions and NGOs.

*Situation Analysis and Rapid Biodiversity Assessment of Mount Roraima*

Given the bio-physical uniqueness of the Mount Roraima region and its strong influence on the socio-economic activities and cultural values of the local population of the region, World Wildlife Fund (WWF) Guianas and the Environmental Protection Agency (EPA) of Guyana commenced preparatory work for the establishment of Mount Roraima as a Protected Area. In October, 2006 a Grant Agreement for the six-month project, scheduled to be completed in May, 2007 was one of the first initiatives towards establishing Mt. Roraima as a Protected Area.

## 4.2 SUSTAINABLE USE OF BIODIVERSITY

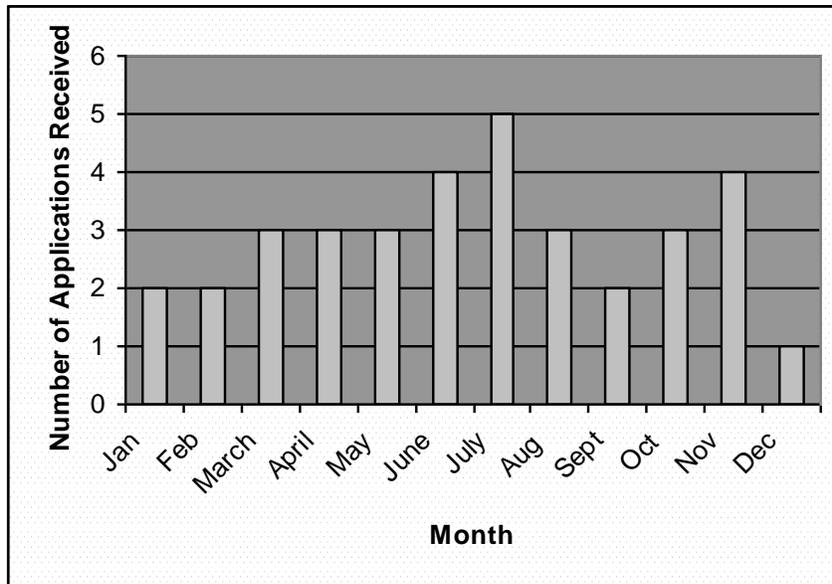
### *Biodiversity Research*

The Biodiversity Unit (BU) is responsible for the processing of research applications in Guyana. Research on the natural resources of Guyana is necessary to support informed decision-making at all levels. Policy makers, Regulators and Scientists rely on robust data to develop strategies, programs and plans for the conservation and sustainable use of these resources. Under the current institutional arrangement, biodiversity research is facilitated primarily through the provisions of the Environment Protection Act of 1996 and the United Nations Convention on Biological Diversity, which was ratified by Guyana in 1994. While there has been an increase in the volume of biodiversity data on Guyana, it is estimated that more than half of the country's species of fauna and flora are still unknown, with some locations virtually unexplored. In addition, where species have been identified, in some instances, population data do not exist.

During the year, much of the studies conducted had been done by foreign researchers from countries around the world through renowned scientific institutions and Universities. There had also been a few naturalists who inadvertently gathered data which can be useful. Generally, there had been an increase in applications for research in various categories namely, taxonomic, ecological, filming, anthropological and archaeological.

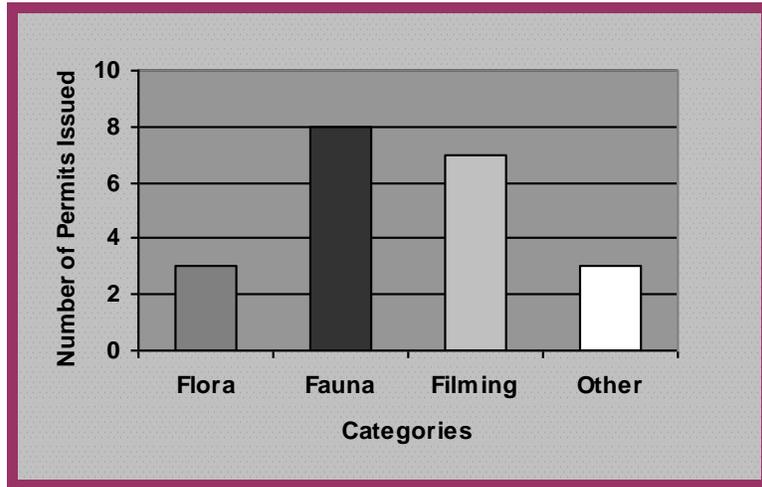
The number of Biodiversity Research Applications (BRA) received had increased considerably from the previous year, from fourteen in 2005 to thirty-five in 2006 (see Fig. III) and twenty in 2004. This represents an increase by 150%. The overall average of BRA received per month had increased for the year from two to three, consistent with the trend during the past five years.

### **Figure 5: Total Number of Biodiversity Research Applications received in 2006**

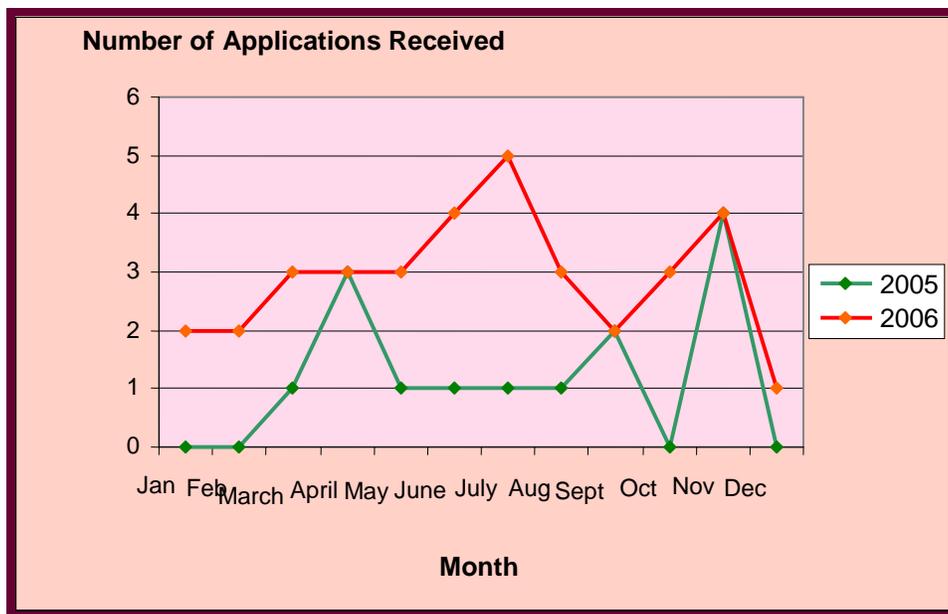


In 2006, twenty-one (21) Biodiversity Research Permits were issued. Figure 6 shows the categories of applications permitted by the Agency during this period. Applications for filming and faunal studies dominated, while floral studies declined significantly from previous years. Nineteen (19) Specimen Export Permits were issued during the year.

**Figure 6: Categories of Research Applications Permitted by the Agency**



**Figure 7: Comparison of Research Applications received in 2005 and 2006**



Ninety-five percent of the applications received in 2006 were approved. Of the thirty-five BRA received, thirty were approved for this year.

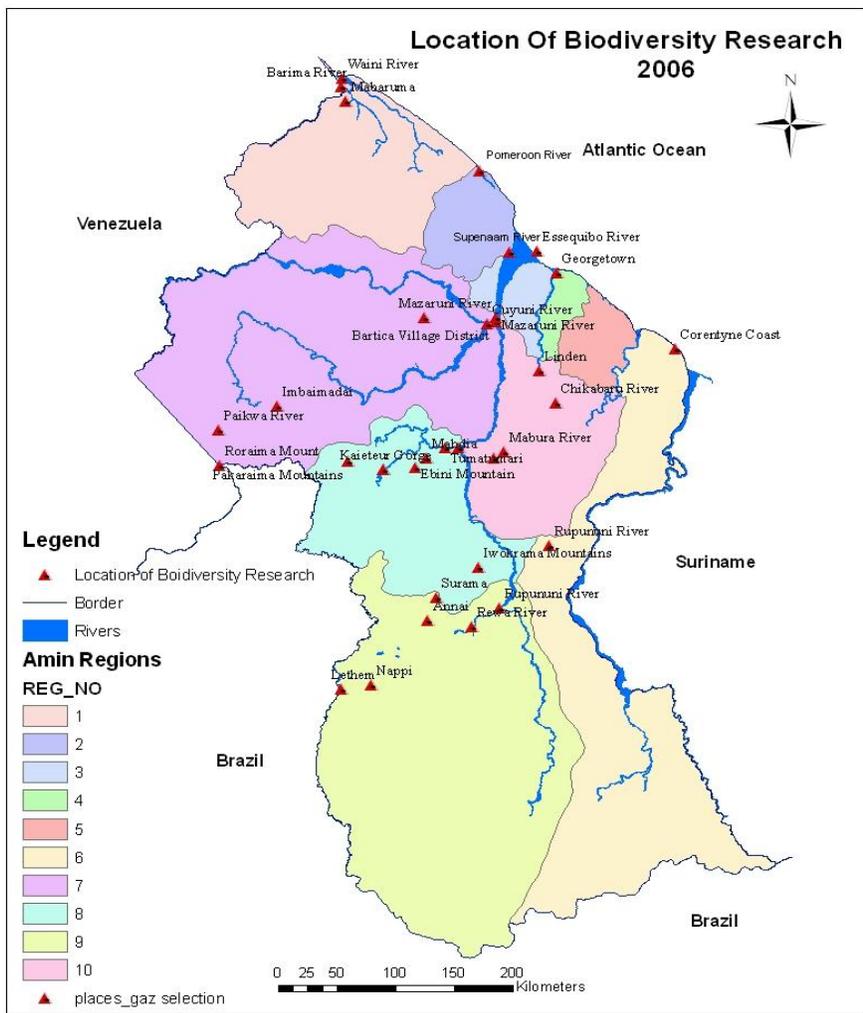
**Table 2: Summary of Applications Received, Approved and Permits Issued in 2006**

Total No. Applications Received	Total No. Applications Approved	Total No. Research Permit Issued	Total No. Specimen Export Permit Issued
35	30	21	19

### Location of Biodiversity Research in 2006

Generally, research for 2006 was concentrated in Region 8. It was observed in previous years that the majority of research was conducted along rivers and creeks. However, as depicted in the map below, research has been moving more inland to previously unexplored areas.

**Figure 8: Map showing Locations of Biodiversity Research in 2006**





*Kaieteurosaurus hindsii*, a lizard named after the Honourable Prime Minister, Samuel Hinds, was discovered at the Kaieteur National Park by Mr. Philippe Kok of the Royal Belgian Institute of Natural Sciences. Both the genus and the species are described as new to science.

*Rivulus mahdiaensis* was named after the village Madhia near to where it was discovered. It was found in Blackwater Creek, a tributary of the Potaro River near Madhia, Central Guyana. It was collected by Coll W. Sujiker and Y. Sujiker-Jansen.



The *Eschatoceras species* was discovered during the Conservation International Rapid Assessment Expedition in Konashen District in October. Dr. Piotr Naskrecki was the Team Leader on the expedition.





This un-named species of catfish was one of 100 types of fish recorded. It was also discovered during the Conservation International Rapid Assessment at Konashen District.

*Atractus tamessari* was discovered by Mr. Philippe Kok, Royal Belgian Institute of Natural Sciences. It was named after Mr. Michael Tamessar, retired Senior Scientific Officer, Department of Biology, University of Guyana. It was collected along a tributary of Elinkwa River, Kaieteur National Park.



*Atractus tamessari*



*Hypsiboas liliae*

A new species of *Hypsiboas liliae* was discovered and named in honour of the Researcher, Mr. Philippe Kok's, daughter Lili Kok. It is tentatively referred to the *Hypsiboas punctatus* group. Its locality lies on the

Kaieteur Plateau at the edge of the primary rainforest and savannah, not far from Kaieteur Falls.

#### **4.2 BIODIVERSITY RELATED PROJECTS**

A number of projects were executed to support the conservation and sustainable use of biodiversity in Guyana. These are presented below:

##### **Development of the National Biodiversity Action Plan (NBAP) 2007-2011**

The National Biodiversity Action Plan I (1999-2004) was used to guide national efforts to implement the CBD and the provisions of the EP Act. The implementation time-frame for the first NBAP (1999-2004) had concluded and in October 2006, the EPA signed a Grant Agreement with the World Wildlife Fund for the development of Guyana's second National Biodiversity Action Plan (2007-2011) with specific focus on four thematic areas: agricultural lands, forests, coastal resources, and marine and freshwater resources. The project is scheduled to conclude in May, 2007.

##### **National Biosafety Framework (NBF)**

The first draft of the National Biosafety Framework was submitted. Five concept papers that relate to the implementation of the NBF and seeking funding for the same from the Caribbean Development Bank and the Canadian Cooperation Fund had been developed. The concept papers were:

- Human Resource Development
- Coordination of National Institutions
- Public Participation
- To Inaugurate Regional Coordination
- Funding from Caribbean Development Bank.

The Project held its final Consultation Workshop on November 27, 2006, to review the draft Executive Summary of the NBF in Guyana. It was expected that the project would conclude in February 2007.

##### **Biosafety Clearing House**

This project is aimed at developing an online database clearing house for information related to Living Modified Organisms (LMOs) and Genetically Modified Organisms (GMOs). Although project execution activities had not begun, a Task Force was established and a draft MoU had been prepared for signature between the EPA and UNEP. This project will be funded by the Global Environment Facility for the duration of twelve months, and was expected to begin by February 2007.

### **Access and Benefit Sharing of Genetic Resources Regulations**

The experience of Guyana in studying its biological diversity had been conditioned by the lack of taxonomists and local institutional capacity to undertake taxonomic research. As a consequence, much of the work that had been done in this area had been through collaboration with international organizations. The thrust had been on coordinating “biodiversity research” and developing systems to ensure that Guyana benefits from research activities undertaken within its territory. The support through the GoG/UNDP Capacity Building for the Management of Natural Resources and the Environment Project toward the development of these regulations would contribute to the efforts of the EPA, and further the implementation of national policies and programmes geared towards the sustainable use of components of biological diversity, as well as the provisions of the CBD.

### **National Capacity Self-Assessment (NCSA)**

Activities under the NCSA project continued through the year towards the preparation of Stock-Taking and Thematic Assessment Reports for the three United Nations Conventions, namely, the Convention on Biological Diversity, the Framework Convention for Climate Change and the Convention to Combat Desertification. The project’s key objective was to develop a National Strategy and Action Plan for the improved implementation of the Conventions. This project was funded by the Global Environment Facility (GEF) through the United Nations Development Programme (UNDP).

The key achievements during the year for the Project were:

- Finalization and Publishing of Awareness Materials
- The development and upload of a NCSA webpage on the EPA website
- Publication of four newsletters;

- Hosting of Regional Consultation Workshops and a Focused Group Stakeholder Workshop.
- The finalisation of the Stock-Taking and Thematic Assessment Reports
- The initiation of the Identification of Cross-Cutting Capacity Issues phase of the project.

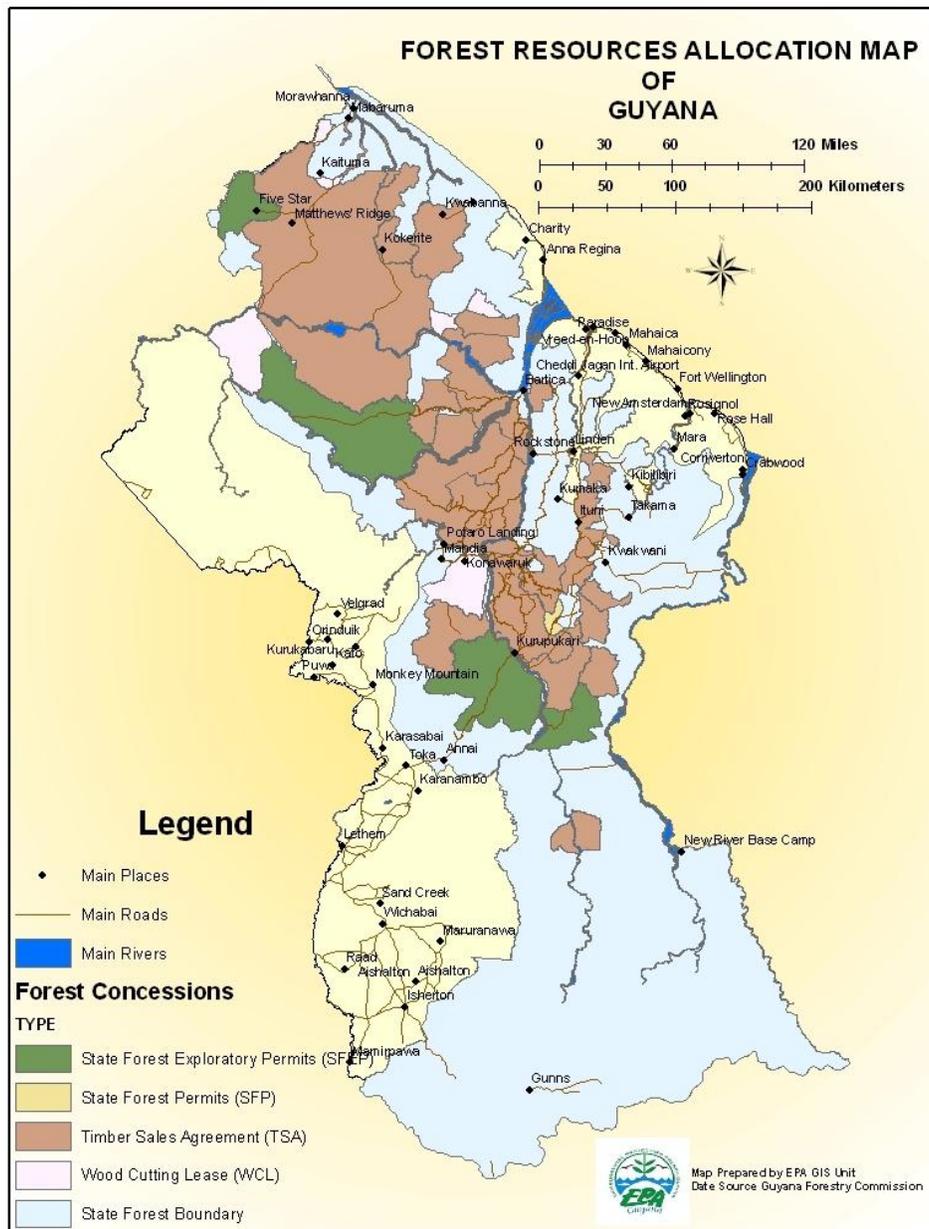
### **Indicators of Impacts on Forest Biodiversity at the Macro-Level**

Funding was received from the Inter-American Development Bank (IDB) for the execution of this project. This was a ground - breaking project which was undertaken by staff of the Agency.

The objective of the project was to develop macro-level indicators applicable to Guyana, in order to assess the extent of the impact of forest operations on the distribution of the biodiversity contained within. The findings of the study were also intended to guide the development of micro-level indicators.

Ten macro-level indicators were developed, a final report was produced, and two maps (see below) outlining the state forest boundaries, and forest allocation by forest concession types. One important indicator developed was the percentage allocation of forest concessions by category. Seventeen satellite images were also purchased to cover the entire area of Guyana.

**Figure 9: Map showing forest concession types**



### Micro-Level Forest Biological Diversity Indicators

A Grant Agreement was signed between the EPA and World Wildlife Fund in October, 2006 for the execution of this Project. The Project was scheduled to be completed in May, 2007. Indicators were to be developed and field-tested to assess the impacts on forest diversity in two contrasting

areas. The Project is being conducted in collaboration with the Guyana Forestry Commission, and is intended to produce a system of indicators and a National Plan of Action to monitor impacts on forest biodiversity.

#### **4.4 CONSERVATION AND SUSTAINABLE USE OF WILDLIFE**

The activities pursued under this area included strengthening collaboration with the local and Regional institutions for wildlife conservation. There was ongoing information sharing and participation on the sea turtles, particularly, within the Guianas.

An aerial survey of Guyana's coast line was done in collaboration with the Sea Turtle Project, led by Dr. Peter Pritchard. This project monitors the population of sea turtles at Shell Beach, Region One and was facilitated by Guyana Marine Turtle Conservation Society. Staff were able to observe data collection technique methods used by the Project first hand at Shell Beach.



**Leatherback on the Beach**

An officer attended the Guianas VIII Regional Marine Turtle Symposium held in Paramaribo, Suriname hosted by The World Wildlife Fund (WWF) in collaboration with the Foundation for Nature Conservation in Suriname (STINASU). The aim of the symposium was to involve stakeholder agencies, through regional collaboration, harmonization of national and regional actions and data exchange. A variety of national and local interests in the conservation of Marine turtles within the Guianas was identified.



**Environmental Officer of the EPA and Representatives of GMTCS and Santa Rosa at the Sea Turtle Symposium, Suriname**

Collaboration continued with South Rupununi Conservation Society (SRCS). The Society trained nine schools in bird survey and observation techniques.

A project proposal was prepared to finalise the Wildlife Management and Conservation Regulations under the UNDP Capacity Building for Management of Natural Resources and the Environment Project.

#### **4.5 CAPACITY BUILDING FOR STAFF**

During 2006, staff benefited from training coordinated by the EPA and from participation in workshops and seminars. The Officers received training in Communication Skills and Conflict Resolution, Geographic Information Systems, Environmental Impact Assessment and training in Basic Survival Swimming techniques. Officers in the Biodiversity and Wildlife Units also benefited from training in National Biodiversity Research Information System - Document Management System and the Research Application Module Training.

#### **4.5 INTRA-AGENCY COLLABORATION**

The NRMD continued to work in close collaboration with the other Divisions of the Agency. The Division assisted the Education, Information and Training (EIT) Division with the coordination of activities for Guyana Environmental Week 2006, International Day for Biological Diversity 2006,

and contributed to the print and electronic media programmes of the EIT Division. NRMD Officers also assisted the Environmental Management Division (EMD) on several site monitoring visits and reviewed EIA documents.

The NRMD implemented a number of strategies to facilitate its activities. These included:

- Improved processing of Biodiversity Research Applications.
- Improved tracking of researches.
- Improved information management of biodiversity research.
- Increased collaboration and information sharing.
- Closer screening of applications and proposed studies. This proactive approach aimed to uncover any undesirable intentions on the part of researchers and to safeguard the country's biological resources.
- Stricter enforcement of the research guidelines. As a result, there was an increase in the number of local counterparts being attached to research expeditions and also a larger number of preliminary research reports and publications being received by the Agency.
- Development of on the job project management skills through the assignment of Officers to at least one project.
- Closer monitoring of the Division's work plan and achievements.

## 5.0 ENVIRONMENTAL MANAGEMENT PROGRAMME

The Environmental Management Division manages the Environmental Authorization process, the Complaints process including Response and Enforcement and conducts Research and Development. Development projects are placed into one of three categories, namely Agriculture and Fisheries (A&F), Industry, Infrastructure and Energy (IIE) and Mining, Forestry and Tourism (MFT for more effective processing by the Agency. As part of the EM Programme the Agency also conducts work related to Integrated Coastal Zone Management (ICZM).

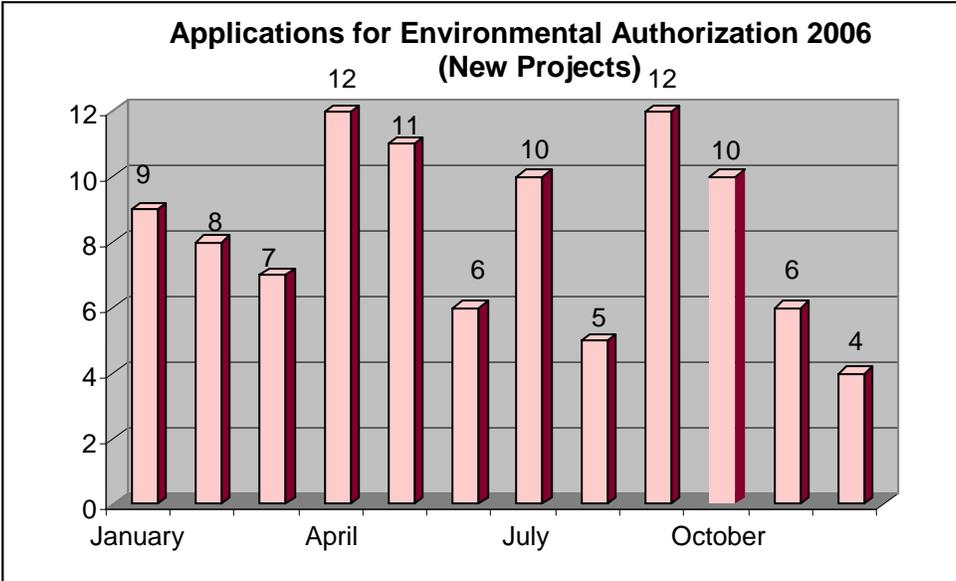
### 5.1 ENVIRONMENTAL AUTHORISATIONS PROCESS

Under the Environmental Protection Act 1996, the Agency is responsible for the protection of the environment, the prevention of pollution and the assessment of the impact of economic development activities. The Agency has an established Authorization process for existing and new developments at both the public and private sector levels. The Authorization process requires that environmental authorizations be obtained from the EPA as the first development consent and that projects incorporate environmental management in their project design and operation.

The environmental Authorization process as prescribed in the Environmental Protection Act, 1996 and the Environmental Protection Regulations 2000 continued to enable the efficient functioning of the Environmental Management Programme. The EPA continued to utilize a comprehensive approach to environmental management, based on regulations, standards and guidelines which were developed. In addition, the Agency collaborated with several sectoral agencies, particularly those in the planning sector, to identify environmental quality objectives and develop synergistic processes that achieve these objectives.

A total of two hundred and twenty nine (229) applications – one hundred (100) applications for new projects, twelve (12) applications for renewal of permits for existing projects, two (2) applications for variance of environmental authorization and one hundred and fifteen (115) applications for noise permit had been received for the year 2006. New applications had almost doubled as compared to one hundred and eleven (111) received in 2005. This increase was attributed to the increase in applications for noise permits.

**Figure 10: Applications for Environmental Authorization 2006 (New Projects)**



A total of one hundred and ninety-nine (199) environmental authorizations had been issued for the year. These included new Environmental Authorizations, renewed Environmental Authorization, Variance of Environmental Authorizations and Noise Authorizations. **Of the 199 authorizations granted during the year, twenty-two (22 %) had been issued for applications made in 2002, 2004 and 2005 and seventy-eight (78 %) for applications made in 2006.**

For the year, the forestry sector continued to submit the highest number of applications – with applications for saw mills and lumber yards constituting the majority of the applications within the sector. This was followed by hotels/resorts/guest house, service stations, infrastructure works and power generation projects. See Table 3 below for a detailed breakdown of applications received in 2006.

**Table 3: Number of New Applications received in 2006 for each Development Sector**

Sector of Development (2006)	No. of Applications
Abattoir	1
Airstrip	1
Analytical Laboratory	2
Bakery Plant	1
Beverage Distribution and Manufacturing	1
Cold Storage, Wharf and Seine Mending Facility	1
Communal Burial Ground and Landfill Site	1
Concrete Blocks	1
Feed Mill	1
Furniture Manufacturing	1
Hatchery	1
Hotel/Resorts/Guest House, etc	11
Importation of Lubricant for Resale	1
Infrastructure Works- Roads, Stelling, Bridges, etc	5
Integrated Crop and Livestock Production.	2
Logging and Sawmilling	1
Low Income Housing Project	1
Lumber Yard	19
Poultry Rearing/Processing	2
Power Generation Project	4
Rice Mill	1
Sand Mining	4
Sawmill	20
Service Stations	8
Soil Treatment Facility	1
Solid Waste Disposal Site	1
Treatment & Bottling of Drinking Water	1
Water Treatment Plant	1
Wood Processing/Kiln Drying Facility	3
Wood Working	2
<b>Total</b>	<b>100</b>

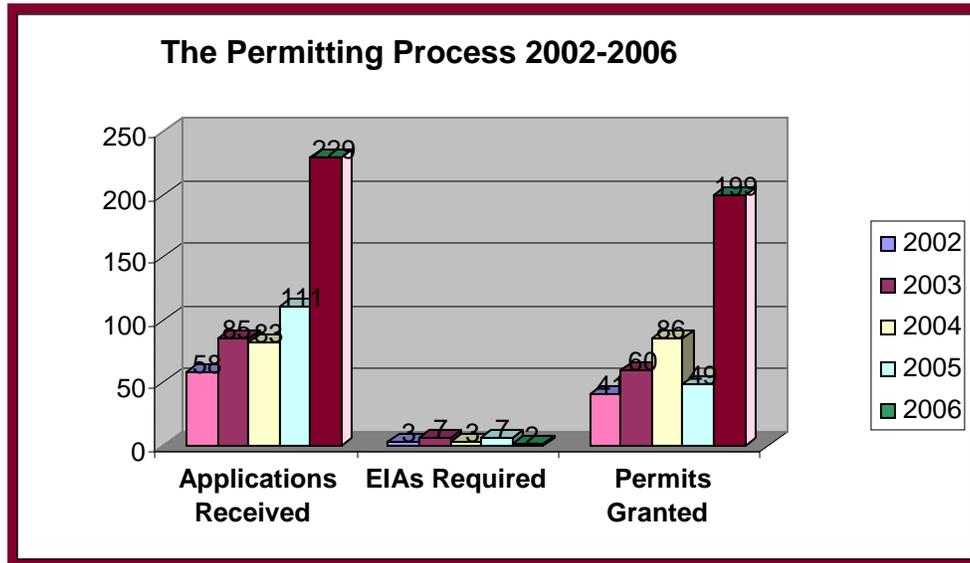
**Table 4: Management of the Authorization Process across Sectoral Units in the EMD**

Sector	No. of Applications Received 2006 (New, Renewal, Variance and Noise)	Number of Environmental Authorization Issued 2006	No. of Applications Requiring EIAs 2006	No. of Applications Requiring EMP 2006
Agriculture and Fisheries	13	6	0	2
Industry, infrastructure and Energy	34	52	0	4
Mining Forestry and Tourism	67	26	2	3
Noise Applications	115	115	-	-
Total	229	199	2	9

In the year under review, applications received by Units were as follows:

- Sixty seven (67) applications had been managed within the Mining Forestry and Tourism (MF&T) Unit, with the majority of applications being for sawmills and lumber yards, followed by hotels.
- Thirty four (34) applications the majority being for service/gas stations had been managed within the Industry, Infrastructure and Energy (IIE) Unit.
- Thirteen (13) applications were managed by the Agriculture and Fisheries (A&F) Unit.

**Figure 11: The Permitting Process 2002-2006**



The increase in the number of applications received had been attributed to an increase in the number of applications for noise permits compared to 2005. The number of projects requiring EIAs decreased compared to previous years. However, the number of projects requiring EMP's did not increase substantially. There had been an increase in the number of projects granted environmental authorizations as compared to last year. Seventy (70) percent of the applications made in 2006 met the requirements prescribed in the EP Act 1996 and the Environmental Authorizations Regulations 2000 and were granted environmental authorizations in the same year. However, six (6) percent of those were not uplifted.

Of the remaining thirty (30) percent of the applications, twenty two (22) percent of the projects were at different stages of the authorization process. Environmental authorizations/permits were prepared for some projects, but were not issued to developers due to the lack of submission of the following outstanding information:

- Neighbourhood Democratic Council (NDC) and Regional Democratic Council (RDC), Central Housing and Planning Authority (CH&PA) approvals,
- Proof of Land Ownership- transport/lease, etc.

Only a small number of projects (i.e.) one (1) percent of the projects were required to do an Environmental Impact Assessment (EIA) and were at various stages of that process. Three (3) percent of projects required the submission of Environmental Management Plans (EMP).

Environmental Authorizations for the other four percent (4) were not granted for the following reasons:

- Sites chosen were not suitable or were refused based on a joint decision by sectoral agencies;
- Unresolved complaints against the developer

**Table 5: Major development projects which were granted Environmental Authorizations in 2006**

<b>Developer</b>	<b>Project</b>	<b>Location</b>
Ministry of Public Works and Communication	Construction and Operation of Berbice River Bridge	D'Edward Village to Crab Island, Berbice.
	Construction and Operation of the Berbice River Bridge Approach Roads	0.8 km from D'Edward Village to the Berbice River Bridge and 3.0 km from Crab Island to the main highway.
Timber Traders S.A. Inc	Logging and Sawmilling Operation	Kartabu Point in the Mazaruni - Potaro District
Demerara Timbers Limited	Sustainable Forestry Operation	Siparuni District, Region 8
Iwokrama International Center for Rainforest Conservation and Development	Airstrip	Situated within Iwokrama, in the Fair View Community
Sanmilk Civil Works Limited	Airstrip	Right Bank of Eping River (Barlow's Landing)

### **Existing Operations**

The registration process for pollution management continued in the early part of 2006. Sixteen (16) existing operations were registered for the year, mainly within the forestry sector. The Agency also continued to permit operations that were in existence before 2000. However, the EPA in order to adequately manage and permit existing operations, ceased the registration process, in September 2006. As such, all existing operations are now required to apply directly to the Agency for an Operation Permit to ensure environmental compliance for the purpose of regularizing these operations.

## Compliance Monitoring

The Division continued with compliance monitoring of operations. However, this activity, which is extremely important to achieve compliance of operations to proper environmental management practices, had been severely affected by limited resources including staff shortage, availability of equipment and budgetary constraints. However, despite these limitations, compliance monitoring was done for priority areas. Below are some of the compliance monitoring activities that were conducted:

- Compliance monitoring of Omai Bauxite Mines Ltd. and Omai Gold Mines Ltd. operations in the area of ground and surface water testing and review of environmental monitoring reports.
- Review of GUYSUCO's Sentinel Agricultural Waste Treatment Plant Monitoring Report.
- Review of progress reports and EMP, compliance checks - Ogle Airport Expansion Project
- Correspondence to permit holders and polluters reminding them of their compliance obligations.



Officers of EPA collecting water samples during a compliance monitoring exercise

## **Environmental Assessment Board (EAB)**

The Environmental Assessment Board (EAB) continued to perform its functions in 2006. Four (4) members were appointed to the Board by Cabinet. The Board reviewed several EIAs this year and was engaged in reviewing an appeal from a resident in Sarah Johanna against a sawmill/lumber yard.

## **EIA Consultants**

Eleven (11) Environmental Consultants capable of preparing EIAs and EMPs registered with the Agency during the year 2006.

## **Legal Issues**

1. Amendments to the Environmental Protection (Hazardous Waste) and Authorizations Regulations 2000 were passed on the 21<sup>st</sup> January 2006.
2. Four (4) applications for ex-parte injunctions were prepared and served by the AG's Chambers and served by the Court Marshall. The Judge presided over the case on 26<sup>th</sup> July 2006. The four operations were woodworking and spray painting operations in Kitty and on the East Coast Demerara.
3. Support was provided by the Attorney General's Chambers with regard to management of court proceedings on environmental matters in the civil jurisdiction to be resolved by the Agency.

## **DEVELOPMENT AND RESEARCH**

The EPA is mandated by the EP Act 1996 to continuously develop, over time, a number of regulations, standards and guidelines and to engage in research to gather baseline data on the state of our environment. Research and Development continued and the following activities were undertaken in 2006:

## Standards, Guidelines and Legislations

- Procedures and manuals were drafted for the implementation of the ISO 17020 Standard for Inspection bodies. .
- Development of environmental standards continued with the GNBS. Interim standards for noise and air quality were developed and a review of the industrial effluent discharge standard was conducted.
- The development of guidelines and codes of practice continued internally, and in collaboration with the GNBS and other agencies. EPA continued to support the GFC and GGMC in developing Codes of Practice. The Code of Practice for Sand and Saprolite Mining, and a Code of Practice for Sawmills and Lumber Yards were drafted.
- The EPA is represented on several technical committees for standards development at the GNBS.
- The Agency has also supported the GNBS on National Conformity Assessment activities through the National Committee on Conformity Assessment.
- A Module on the Authorisation Process for Public Investment Projects was developed.

## **Cross-Sectoral Programmes**

### Conventions and Multi-Lateral Environmental Agreements

- The EPA has continued to meet Guyana's obligations under the Basel Convention. In this regard, a report on the Transmission of Information for 2005 and a report on Mercury Partnerships were prepared. The Agency has also contributed to the Development of Regional Strategies for managing certain hazardous waste through the Basel Convention Regional Centre in Trinidad and Tobago.
- The Agency participated in some activities of the Cartagena Conventions through the Caribbean Environment Programme.
- The Agency continued to support and participate in the negotiation and preparation for accession/ratification of new conventions. A paper recommending Guyana's ratification to the Stockholm Convention on Persistent Organic Pollutants was prepared for the Office of the President and Ministry of Foreign Affairs.

### Integrated Coastal Zone Management (ICZM)

- The Grant Agreement for the Coastal Zone Management System (CZMS) Project was signed between the Government of Guyana and the Caribbean Development Bank

(CDB) in July 2006. The objective of this Technical Agreement is to strengthen Guyana's existing capacity for decision-making with respect to coastal and marine living and non-living resources. This would be through an efficient mechanism to capture, analyse, model and manage data collected from the coastal zone through the establishment of a CZM System. Meetings were held with various agencies as outlined in the Agreement as part of the Project Implementation Team (PIT).

- The ICZM Unit continued to coordinate activities of the ICZM Committee during the year.
- A draft status report of the ICZM Action Plan was developed and awaits consultations with the ICZM Committee. The ICZM Action Plan sought to strengthen the process of ICZM and the capacity of key national institutions to deliver an effective ICZM Programme.

### **Climate Change**

- EPA continued to provide support to and is supported by the Hydromet. Service on Climate Change issues.

### **Consultancies under IDB EM Programme - Phase II**

The Division continued to implement and manage projects under the IDB Environmental Management Programme - Phase II Project throughout the year. These projects strengthened the Environmental Management Programme of the Agency and included:

1. Pollution Abatement Consultancy

The final reports on all the training programmes that were held in 2005 under this consultancy were submitted.

2. Investment Priorities Consultancy

A pre-feasibility study was done into Small-Scale Manufacturing and Non-Timber Forest Products that identified future priority investment opportunities.

3. State of the Environment Consultancy

A State of the Environment Report for the Demerara Watershed was produced. This report is available for the use of sectoral agencies and the public. Also a Water Quality Survey was conducted for the entire Demerara River which provided important information on the water

quality in the river. In addition, a Public Disclosure Programme for presenting and disseminating environmental information was developed.

4. National Environmental Monitoring Plan

A Water Quality Monitoring Plan was developed for the main waterways of the entire country. Also a National Air Quality Monitoring Programme was developed.

5. Procurement of Laboratory Equipment

Several pieces of equipment were procured and handed over to the Institute of Applied Sciences and Technology (IAST) for installation and management through a Memorandum of Understanding (MoU). In addition, some other field equipment were procured for the Division

6. Survival Training

Officers were trained in swimming and rescue techniques.

### 5.3 RESPONSE

#### *Complaints and Environmental Emergencies Response*

The Agency has the mandate to resolve environmental concerns expressed by the public through specific and strategic interventions at various levels of decision-making. This includes both the facilitation and coordination of emergency response and disaster management actions in the event of an environmental emergency or disaster, and response to nuisance complaints that are made by the members of the public.

For this year, there were a wide range of complaints received by the Agency. Of the total of 224 complaints received, 183 were new complaints and forty-one (41) of these complaints were recurring ones. The highest number of complaints (37) was made about dust, noise, and odour nuisance associated with Furniture / Wood working operations. A total of 30 complaints listed as 'Other' were received spanning a range of issues, including,

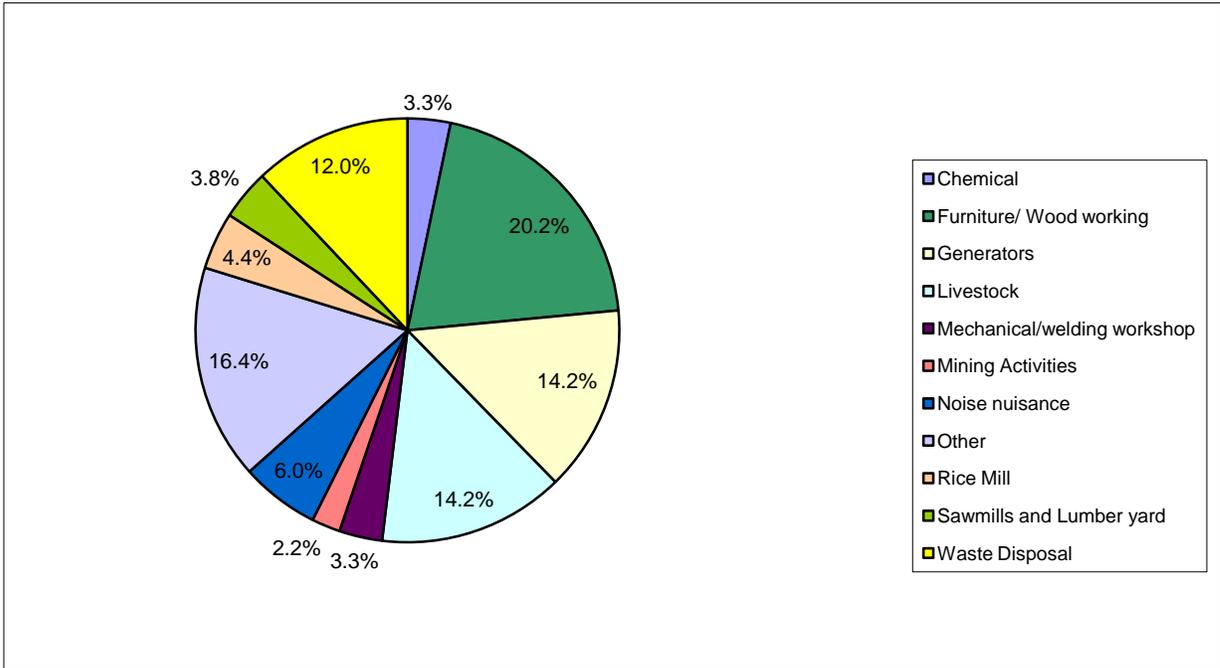


**Officers of the EPA investigating a complaint**

dust and noise from block-making, odour from storage of dry goods as well as from the transfer of cooking gas, and fumes from smelting and spray painting. Other complaints included dust from roads, noise from air conditioning units and destruction of fences.

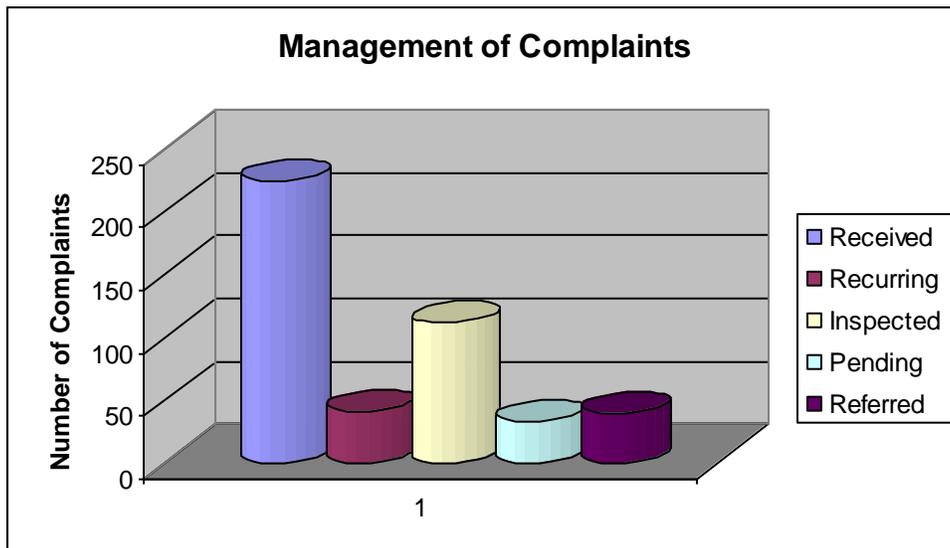
Noise and smoke from generators and odour, flies and improper waste disposal from livestock rearing operations were the third highest percentage of complaints made in 2006 with a total of 26 each. Mining activities accounted for the lowest percentage (2.2%) of sectoral complaints being slightly lower than complaints about odour or noise from chemical operations, Sawmills and Lumber Yards and Mechanical / Welding workshops, all fell within the 3% range. Improper methods of waste disposal such as dumping and burning of garbage consisted of 22 complaints or 12% and proved to be significant as well, while noise nuisances from music, liquor restaurants and recording studios accounted for half of this with a total of 6% and was the highest single digit percentage.

**Figure 12: Distribution of Complaints received in 2006**



Of the 224 complaints received for the year, 41 were recurring complaints. One hundred and eleven (111) complaints were inspected by the Division of which 39 were referred to the appropriate body, such as an NDC, the CH&PA, etc. Thirty-three (33) complaints were noted to be pending further investigation. The Division will examine new methods of reconciling recurring complaints in the upcoming year.

**Figure 13: Management of Complaints According to Sector**



## 5.4 COLLABORATION

### Field and Laboratory Support

- Procurement of field and laboratory equipment was done under the IDB Phase II Programme and it was handed over to the Institute of Applied Science and Technology (IAST) through a Memorandum of Understanding for the installation and management.
- Some additional field equipment was procured with funds remaining from the IDB Phase 11 Programme.
- Government Analyst Department of the Ministry of Health and IAST had provided the Agency with analytical laboratory services.

### Inter-Agency Collaboration and Sectoral Agencies Support

- An MoU was signed with the GNBS for collaboration in the implementation of ISO 14001 Standard for Environmental Management in some pilot industries.
- Four (4) project proposals for funding under the GoG/UNDP Capacity Building for the Management of Natural Resources and the Environment Project through the Ministry of Foreign Affairs were prepared. These proposals addressed Hazardous Waste Management, Air Quality Monitoring, Water Quality Monitoring and a Revision of the Environmental Legislations. Of these, the Hazardous Waste Project was identified for funding.
- The EPA collaborated with other stakeholders in a project to develop a National Programme for the Prevention of Pollution to the Demerara Watershed from Land- Based Activities and the preparation of a Water Safety Plan for Linden with the support of the US Government and CEHI.
- A Forestry Sectoral EIA was prepared by Consultants for the GFC and approved by the EPA. A meeting was held with the EPA and the GFC to discuss implementation of the recommendations made in the EIA.
- A Mining Strategic EIA was prepared by Consultants for the GGMC, under a World Bank Project; this was reviewed by the EPA. The Agency was also involved in the public consultation process.
- The EPA participated in the development of a Code of Practice for lumber yards and sawmills, coordinated by the GFC.
- The EPA contributed to the development of the GENCAPD Phase II project.

- Representatives of the Agency continued to actively support national statutory Boards and technical committees, at the CHPA, GGMC, GFC, GNBS, Cricket World Cup Local Organising Committee and Sea and River Defence.

### **Inter – Divisional Collaboration**

- The Division worked with the Environmental Economist on several activities including a screening criterion to determine the scale of projects, etc.
- The EMD has provided technical assistance on environmental management issues to the EIT, i.e. television appearances, brochures, workshops, annual reports, newsletters, calendars and World Environment Day activities.
- EMD continued to involve the NRMD in review of project EIAs which affected the programme areas of that Division.
- EMD participated in workshops hosted or arranged by the other Divisions.
- Officers of the EMD benefited from training activities organized by the other Divisions.

### **Constraints**

Human Resources:

1. Legal Support remains a challenge over the last three (3) years at the Agency. This has considerably affected progress with compliance and enforcement, especially in resolving complaints and for legal advice on matters relating to the authorization process.
2. Staff turnover continues to affect the Division especially with the loss of senior personnel.
3. Inadequate field staff and scarcity of financial resources, transportation and equipment to undertake monitoring and inspections are still major limitations.
4. An Environmental Appeals Tribunal (EAT) is still not in place to resolve objections and EIA matters in the permitting process.

## 6.0 EDUCATION, INFORMATION AND TRAINING PROGRAMME

The Education Information and Training (EIT) Programme of the Environmental Protection Agency continued to promote and encourage a better understanding and appreciation of the natural environment and its role in social and economic development. The Agency also informed and educated the public on the need for and methods of protection of the environment and promoted the participation of members of the public in the process of integrating environmental concerns in planning for development.

The EIT programme of work for 2006 addressed the following four areas:

- (i) Development of Education Materials
- (ii) Outreach
- (iii) Capacity Building
- (iv) Information and Communication



Capacity Building Workshop for Stakeholders in Environmental Management

### 6.1 DEVELOPMENT OF EDUCATION MATERIALS

During 2006, several materials were created and or reprinted for use by the public and as resource for schools, community and other target groups. The titles of these materials are reflected in Table 6 below:

**Table 6: Materials Developed in 2006**

Type	No.	Title
Lists	3	These were created to inform the public of the resources available at the EPA on: Education Materials
Booklets		"A reflection of a decade of achievements" "1996-2006" produced for EPA's 10th anniversary.
Packages	20	Packages were compiled on the following subjects:  i. Importance of Water ii. Importance of Ozone iii. Information Materials on Solid Waste Management were prepared and sent to the Regions on request.
Calendar	1	A 2006 Calendar was produced on the theme: "Cleaner industry for a better environment"
Reports	2	The Environmental Protection Agency's 2005 Annual Report A Report on the National Capacity Building Workshops for Stakeholders in Environmental Management
Newsletter	1	The EPA Newsletter, Green Leaf, was produced and circulated to Sectoral Agencies and posted on the EPA Webpage

## 6.2 OUTREACH PROGRAMMES

### Exhibitions

The Agency took advantage of opportunities to host booths at a number of exhibitions organised by other organizations. At these activities the Agency interfaced with a wide cross section of the public to share information on environmental best practices. The EPA participated in the following exhibitions during 2006:

- A Youth exhibition which was coordinated by the Young & Thoughtful Environmental Club at the West Demerara Secondary School. Several NGOs participated in this event.
- “UG Open/Career Day”. The activity was used to disseminate educational materials mainly to university students, schools and youth groups. Also visitors to the booth were able to observe poster displays that illustrated the skills required to conduct the work of the EPA.
- “Environmental Mining Exhibition” – This exhibition was coordinated by the Guyana Geology and Mines Commission and provided the EPA with an opportunity to share information on environmental best practices in mining.



Students viewing exhibits displayed at the EPA 's Booth during UG Career Day 2006

### **Presentations**

The Agency conducted presentations as shown in Table 7 below:

**Table 7: Presentations Conducted in 2006**

Topic	Target Audience
About Solid Waste Management	This talk was presented to youths in Region 7 through the Ministry of Culture, Youth and Sport.
Youth's and the Environment	This presentation was delivered to approximately .300 youths drawn from across the country. This was part of the PYARG programme in observance of Guyana's 40 <sup>th</sup> Independence Anniversary.
"Protecting Biodiversity in Drylands."	This presentation delivered to several schools in the observance of 'International Biological Diversity Day' 2006.
About the EPA	This talk was delivered to teachers and students of the Business College, when they visited the EPA.
International Ozone Day	A presentation was delivered in a creative way to group of ten schools in observance of "International Ozone Day"
International Day of the Family	The presentation was delivered to church members in observance of the theme for this year's International Day of Families, "Changing Families: Challenges and Opportunities"
"Water Conservation in the Community"	This presentation was delivered to students from several schools in observance of World Water Day 2006.
"How the EPA utilizes the Media"	This was conducted at a Media Workshop hosted by PAHO on 15th June, 2006.
Environmental Protection Act	This presentation was delivered to the junior officers of the Guyana Police Force.

### Environmental Clubs

Over one hundred (100) Environmental Clubs exist across the country. During the year, the Agency interfaced with many of them in different ways. The major activities conducted with Clubs during 2006 are as follows:

- (1) Officers of the Agency visited fifteen (15) Clubs during the year to encourage them to write proposals to access the Green Fund, a micro-grant for environmental enhancement activities.

- (2) Nine (9) new Environmental Clubs were affiliated to the Agency in 2006, bringing the total number of clubs affiliated to 110. The new Environmental Clubs are: Tagore Secondary School, Leeds Primary School, No. 43 Primary School, and No. 48 Primary School, No. 56 Primary School, No. 59 Primary School, No. 68 Primary School, No. 71 Primary School and New Market Primary School
- (3) Meetings were held with the nine (9) Environmental Clubs mentioned in (2) above, to stimulate dynamic Club activities. These clubs also benefited from a three- day training programme in “School Yard Ecology” (SYE). The overall objective of the training in SYE methodology was to equip Clubs with the skills and techniques to develop activities that stimulate and sustain the interest of their members by allowing them to “learn about the environment in the environment and for the environment.”
- (4) Four (4) proposals were received from Environmental Clubs for funding under the Green Fund Micro-Grant being implemented by the EPA. These proposals were reviewed by the Green Fund Steering Committee which recommended changes. However, one of the proposals was resubmitted and funding was provided for the project to be executed.

### **6.3 BUILDING CAPACITY**

Under the EMP Phase II Project, four “Capacity Building Workshops for Stakeholders in Environmental Management” were conducted during July - October 2006. The major objective of the workshops was to raise awareness of the environmental management principles that guide the work of the Environmental Protection Agency (EPA) and possible actions that can be taken to complement and enhance environmental management in Guyana. The staff of the Agency developed the training materials and delivered the training for the workshop.

### **6.3 ENVIRONMENTAL DAY OBSERVANCES**

The EPA observed International Day for Biological Diversity with school talks at fifteen (15) schools, a TV panel discussion and an article in the newspaper.

A Green Walk was coordinated by the EPA in observance of World Environment Day 2006. There was wide participation from Public and Private Sector, Non-Governmental Organisations, schools and members of the public. Additionally, the Agency prepared a radio message and organized a TV panel discussion on the World Environment Day theme.

## 6.4 MEDIA PROGRAMMES

The Agency continued to coordinate the weekly environment segment of the Guyana Today Show which is aired on Tuesdays on NCN Channel 11. The EPA has been successful in getting a wide range of stakeholders to appear on the programme and to share information on their work in relation to environment. The groups and organisations that contributed to the programme are shown in the Table below:

**Table 8: Groups and Organizations which Participated on the Guyana Today Show in 2006**

Groups and Organisations	No. of Appearances
Environmental Protection Agency	10
Guyana Forestry Commission	6
Ministry of Agriculture –Hydro meteorological Division	1
PAHO	1
United Nations Development Programme (UNDP)	1
National Parks Commission	1
GWI	4
Marian Academy Environmental Club	6
Banks DIH	3
PYARG	1
Guybernet	3
GNBS	2
United Nations Population	1

### Newspapers

The EPA continued to contribute articles to the weekly Environment Column published in the Guyana Chronicle. The articles published for the year addressed the conservation and sustainable use of the environment with specific focus on:

1. Environmental Health
2. Wetland and Dry-land Conservation
3. Solid Waste Management
4. International Environmental Days
5. Biodiversity Conservation
6. Integrated Coastal Zone Management
7. Protection of the Ozone Layer

8. Water Conservation
9. Disaster Reduction
10. Food Conservation

## **6.5 INFORMATION AND COMMUNICATION**

The Documentation Centre continues to provide public access to its environmental resources. The major users of the Centre's resources were students of the University of Guyana.

### **Geographical Information Systems**

The GIS Unit has responsibility for the efficient management of all spatial related data and for the empowerment of all employees within the Agency with the necessary skills to enable the use of GIS data as a tool for sound decision-making.

#### **Data Management**

Initiatives were taken to enhance the GIS services offered by the Agency as follows:

- A new internal GIS website was developed using a content management system (CMS) for the integration of various services. The services currently available are a GIS glossary, places gazetteer of Guyana and places finder, real time map viewer and digital atlas for end-users.
- New training materials on GIS and remote sensing were also uploaded to the internal website.
- GIS databases on coastal landuse, agriculture areas owned by Guysuco, Private, State/Government, Waterways and Environmental Complaints were updated.
- The ARCIMS software was installed.
- 1:50000 topographic base map images, satellite images, hardcopy maps and aerial photos of the coastland were compiled.

- Shape files for Forestry Concessions from the Guyana Forestry Commission were procured.
- 22 satellite images were procured that will give complete coverage of Guyana. The images are being bought under the IDB funded, Indicators of Impacts on Forest Biodiversity Project.
- Maintenance was carried out for the GIS Database including a review of the current GIS database and identifying data gaps.

### **Training/ Meetings/Workshops**

Training activities conducted during the year included:

- Introductory GIS training was given to staff members of the EPA during 2006 on the use of:
  - ArcGIS 9.0 GIS Software
  - Global Positioning Systems (GPS) using a GARMIN GPS System.

The modules used for the GIS training were prepared and submitted by the consultant hired to conduct the training.

- Three different types of training in GIS were provided to Officers of the Agency.
- The GIS Specialist attended training in Emission Estimation Techniques Environmental Management Skills. The workshops were facilitated by the Environmental Management Division and were held in the EPA/ IAST Boardroom.

### **CDB Coastal Zone Management**

GIS inputs were made in the Caribbean Development Bank funded Coastal Zone Management Systems Project to be implemented by the Agency. Additionally, GIS Officers participated in the development of the evaluation criteria for the Statement of Capability submitted by firms for the CDB CZMS project, and the development of the work plan for the CDB CZMS Project.

Several maps were prepared during 2006 in the implementation of the Agency's work. These included maps related to the following activities of the Agency:

**Table 9: Maps Produced by GIS Unit in 2006**

Title of Map	No. Printed	Programme Area Supported	Specific Activity Supported
Water Conservancies and Drainage Basins in Guyana, featuring: East Demerara Conservancy and catchments basin, weather stations, forest concessions, wood industries, complaints, authorized developments and areas of biological Interest in Guyana.	1		
Topography, Amerindian Areas, Forestry Concessions, Soil and Vegetation types within the East Demerara Watershed.	1		<b>State of the Environment Report.</b>
Network of possible sites for the collection of water quality data in Agriculture areas in Guyana	1		
Location of industries in populated areas that can have an adverse effect on air quality.	1		
Location of industries in populated areas that can have an adverse effect on air quality	1		
Proposed sites for hydro-power stations in Guyana.	1	<b>Environmental Management</b>	
Roads, rivers, creeks, border and permitted industries for 2002, 2003 and 2004 from its GIS database.	1		
Permitted tourist and recreational facilities by Region.	1		
Registered and permitted industries for 2002, 2003 and 2004	3		
Mining Areas in Region 7	1		<b>Complaints Management</b>
Complaints investigated by sector	1		
Distribution of Complaints on Coastline of Guyana.	1		
Projects undergoing the EPA's Permitting Process	1		

Title of Map	No. Printed	Programme Area Supported	Specific Activity Supported
Distribution of biodiversity permits featuring: biodiversity data by type	1	<b>Natural</b>	
Research areas by research type and by Administrative Region	1	<b>Resources</b>	<b>Biodiversity Research</b>
Mineral Resources map and a Biodiversity Research map by category.	1	<b>Management</b>	
Resource map of the CREP Amenity Area.	1		<b>CREP Amenity Site</b>
No. 63 Beach (for use in the development of the beach management plan)	1		
Environmental Clubs located in the CREP Amenity Area	1		<b>(Village Nos. 43-74,</b>
Beach length between numbers 54 - 65 villages on the Corentyne Coast.	1		<b>Corentyne Coast, Berbice)</b>
Kanuku and Shell Beach Study Areas.	2		
Extended Kaieteur National Park Boundary	1		
The Forest Types and Protected Areas of Guyana.	1		<b>Protected Areas</b>
Kaieteur National Park and Chenapau Amerindian Village – prepared for the KfW project.	1		
Caiman Densities in Mahaica, Mahiacony and Abary.	1		<b>WWF - Wildlife Surveys</b>
			<b>Project</b>

Title of Map	No. Printed	Programme Area Supported	Specific Activity Supported
Environmental Clubs of Guyana	2	<b>Education, Information and Training</b>	
Areas of Biological Interest.	1		<b>EPA Strategic Plan - 2006-2010</b>
Guiana Shield and Natural Regions	1		<b>Capacity Building for Stakeholders in Environmental Management</b>
Poster on the use of GIS within the EPA	1		

APPENDIX 1

EPA Staff List in 2006

	NAME OF OFFICER	DESIGNATION
1	Doorga Persaud	Executive Director
	<b>ADMINISTRATIVE DIVISION</b>	
2	Dhanrajie Madray	Director - Admin
3	Dharamdei Mohan	Executive Assistant
	<b>Office of the Executive Director</b>	
4	Vannie Rooplall	Executive Assistant
5	Mohamed Chan	Driver
	<b>Policy, Planning &amp; Research Unit</b>	
6	Tim Laing	Environmental Economist
	<b>GIS Unit</b>	
7	Jagdesch Singh	GIS Specialist
8	Andrea Mahammad	Environmental Officer II
	<b>IT Unit</b>	
9	Leon Persaud	Technical Support Officer
10	Carlos De Cunha	IT Specialist
	<b>Human Resources Unit</b>	
11	Seema Greene	Human Resources Officer
12	Roxanne Hutson	Office Attendant
13	Laverne Rampersaud	Office Attendant
	<b>Finance Unit</b>	
14	Motilall Sukhdeo	Finance Officer
15	Raywattie Singh	Accounts Clerk
16	Fiona Marshall	Accounts Clerk
17	Hollee Ragnauth	Snr. Accounts Clerk (ag)
	<b>Procurement Unit</b>	
18	Mark Pertab	Administrative Officer -General
19	Tanisha Romain	Administrative Assistant
20	Paul Sukhu	Office Assistant
21	Orlando Kirton	Office Assistant
22	Asrath Ali	Driver
23	Ramsarran Etwaroo	Driver
24	Andrew Adams	Driver
	<b>ENVIRONMENTAL MANAGEMENT DIVISION</b>	
	Vacant	Director
25	Fianna Holder	Director (ag)
26	Preeya Rampersaud	Senior Environmental Officer
27	Khalid Alladin	Senior Environmental Officer
28	Hance Thompson	Environmental Officer II(no pay leave)
29	Simone Lewis - Osborne	Environmental Officer II
30	Samantha Heyligar	Field Technician

31	Sharmattie Ramnath	Executive Assistant
32	Nasheta Dewnath	Environmental Officer I
33	Teijvartie Harnanan	Environmental Officer I
34	Stacey Phillips	Environmental Officer I
35	Neil Henry	Environmental Officer II
36	Karen Roopchand	Environmental Officer II
37	Alicia Foster	Environmental Officer I
38	Esan Cadogan	Environmental Officer II
39	Karen Alleyne	Environmental Officer I
40	Cleavon Cameron	Environmental Officer I
41	Indira Mattai	Environmental Officer I
42	Dylon Rachpaul	Field Technician
	<b>EDUCATION INFORMATION &amp; TRAINING DIVISION</b>	
43	Sharifah Razack	Director
44	Christopher Chin	Senior Environmental Officer
45	Sonia Gumbs	Environmental Officer I
46	Zeya Ramnauth	Communication Officer
47	Candacie Brower	Environmental Officer I
48	Renwick English	Environmental Officer I
	vacant	Documentation Assistant
	<b>NATURAL RESOURCES MANAGEMENT DIVISION</b>	
49	Indarjit Ramdass	Director - NRMD
50	Ramesh Lilwah	Biodiversity Specialist
51	Pameshwari Pitamber	SEO
52	Clydecia McClure	Environmental Officer I
53	Ian Kissoon	Environmental Officer II
54	Dominique Saheed	Environmental Officer I
55	Chuvika Harilall	Environmental Officer I
56	Oumardatt Ramcharran	Environmental Officer I
57	Louella Benjamin	Executive Assistant